

Geometrical Perspective

Connections between mathematics and the visual arts have been evident since earliest times. A notable feature of Renaissance painting was that, for the first time, artists became interested in depicting three-dimensional objects realistically, giving visual depth to their works. This led to the study of geometrical perspective.

The first artist to investigate perspective seriously was the artisan–engineer Filippo Brunelleschi, who designed the self-supporting octagonal cupola of Florence cathedral. His ideas were developed by his friend **Leon Battista Alberti** (1404–1472), who presented mathematical rules for correct

perspective painting, stating in his *Della Pittura* [On Painting] that “the first duty of a painter is to know geometry.”

Piero della Francesca (1415–1492) found a perspective grid useful for his geometrical investigations, and wrote *De Prospectiva Pingendi* [On the Perspective of Painting] and *Libellus de Quinque Corporibus Regularibus* [Book on the Five Regular Solids]. His *Madonna and Child with Saints* (1472) is in perfect mathematical perspective.

The other title on these stamps is *De Divina Proportione* [On Divine Proportion] (1509) by Piero’s friend **Luca Pacioli** (1445–1517). The woodcuts of polyhedra in this book were by his friend and student **Leonardo da Vinci** (1452–1519), who explored perspective more deeply than any other Renaissance painter. In his *Trattato Della Pittura* [Treatise on Painting] da Vinci warns “Let no one who is not a mathematician read my work.”

The celebrated German artist and engraver **Albrecht Dürer** (1471–1528) learned perspective from the Italians and introduced it to Germany. His famous engravings, such as *St. Jerome in His Study*, show his effective use of perspective.



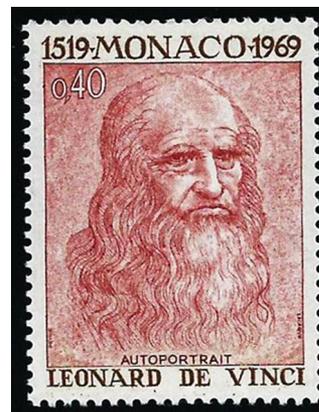
Alberti



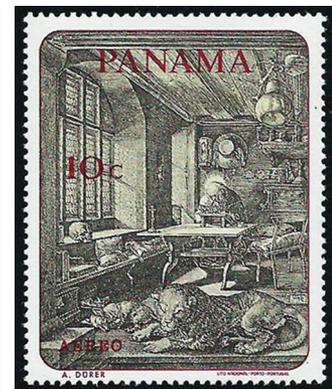
Madonna and Child



Luca Pacioli



da Vinci



St Jerome

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